



Fred Marashi, Ph.D.
Chemical Regulatory
Compliance Coordinator

10001 Six Pines Drive
Suite 4104
The Woodlands, Texas
77387-4910

Telephone: 832-813-4675
Fax: 832-813-4925

marasi@cpchem.com

www.cpchem.com

Contain NO CBI

RECEIVED
OPPT NCIC

2002 NOV 13 AM 9:50

8EHQ-1002-15216

RECEIVED
OPPT CBIC

2002 OCT 28 AM 6:13

October 24, 2002

Overnight Mail

TS-7407 Document Control Officer
OPPT US-EPA
EPA East Building - Room 6428
1201 Constitution Avenue, N.W.
Washington, DC 20004-3302
Contact Phone Number: 202-564-8930



8EHQ-02-15216

63142

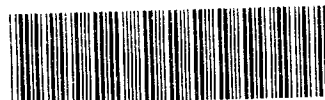
Attention: TSCA 8(e) Notice

Dear Document Control Officer

This submission is made pursuant to Section 8(e) of the Toxic Substances Control Act. Chevron Phillips Chemical Company LP (CPChem) reports that it has identified a residual production of formaldehyde (CAS No. 50-00-0) in a polystyrene production unit. To our knowledge, this finding has not been previously reported to the EPA Administrator. As formaldehyde is classified as a probable carcinogen, we are reporting this finding to the agency. We have found no indication of significant human exposure, risk to CPChem employees, or the probability that this finding constitutes a Substantial Risk. Nonetheless, we are submitting this information so that it might benefit the agency and assist others who have similar processes.

We anticipate that the most likely source of formaldehyde emissions is the condenser unit where water contaminant is drained off and discarded on hourly intervals. As part of CPChem's extensive program for evaluating workplace air for potential employee exposure to formaldehyde during polystyrene processes, breathing zone air samples have been collected. Several breathing zone samples have indicated the presence of formaldehyde in the work environment at levels above detectable but well below OSHA exposure limits. None of the samples collected have indicated formaldehyde levels above OSHA exposure limits.

During recovery and condensation of un-reacted styrene vapors, a white semi-solid residue is deposited in the condenser tubes. A recent sample of this white material was analyzed by CPChem's Kingwood, Texas laboratory. The results from that analysis were received on October 3, 2002. They indicated that the material was approximately 30% paraformaldehyde (CAS No. 30525-89-4), 68% water, 0.4% styrene, and the remainder being possibly polystyrene. Paraformaldehyde is formed from polymerization of formaldehyde as a result of cooling in the condenser tubes. The ceiling temperature for formaldehyde, the temperature at which formaldehyde and paraformaldehyde are present in equimolar ratio, is 119 degrees C. At temperatures less than 119 degrees C, the equilibrium is shifted to favor the paraformaldehyde state, while at temperatures greater than 119 degrees C formaldehyde formation is favored.



88030000011

Production of formaldehyde from oxidative decomposition of polystyrene at temperatures of about 250 degrees C has been demonstrated in the literature. However, in polystyrene production process the reactor temperature is maintained between 135 degrees C and 155 degrees C, which are far below the temperature expected for formaldehyde production from decomposition of polystyrene. To the best of our knowledge, there are no reports in the existing literature indicating formaldehyde or paraformaldehyde production during commercial polystyrene production process.

We are continuing to gather data and evaluating our process to determine the mechanism for the formation of formaldehyde. We have reinforced our extensive employee exposure monitoring program, and we are determining locations within the polystyrene production unit where exposure to formaldehyde may exist. In the meantime, we have notified potentially affected employees and have taken all reasonable and prudent precautions to prevent employee exposures by implementing personal protection equipment (PPE) requirements including the following:

- 3M Respirators with 3M #60926 Multi-gas filters
- full face and half mask respirators (same filter used for both types of respirators)
- Tyvek to prevent skin contact
- Gas proof goggles (if needed) when using half mask respirator to protect eyes
- Chemical resistant gloves - Nitrile rubber to protect hands

Sincerely,



Fred Marashi